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EXAMINER

GUSHI, ROSS N

ART UNIT

PAPER NUMBER

2833

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/975,213

Applicant(s)

BEAMAN ET AL.

Examiner

Ross N. Gushi

Art Unit

2833

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-70 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7,9-15,17-25,27-46,48-53,55-57 and 59-70 is/are rejected.
- 7) ☐ Claim(s) 8,16,26,47,54 and 58 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Information Disclosure Statement***

Regarding the Information Disclosure Statement's filed 10/11/01 and 10/12/01, the examiner notes that the statements have been noted as being filed in the PTO's automated system, however, the statements are not in the application file wrapper and therefore the examiner has not been able to consider the statements. The examiner requests that the applicant resubmit the IDS form 1449 so that it may be considered.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in —

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a);

Claims 1, 4, 6, 11, 14, 17, 18, 32, 33, 34, 37, 38, 39, 40, 41, and 42 are rejected under 35 U.S.C. 102(e) as being anticipated by Li et al. ("Li").

Regarding claims 1, an electrical structure comprising a conductive button, said conductive button including: a dielectric core 24; and a conductive wiring 22 helically wound circumferentially around the dielectric core, wherein the conductive wiring terminates in at least two end contacts at a first end of the conductive button, and

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wherein the conductive wiring terminates in at least two end contacts at a second end of the conductive button.

Per claim 4, Li discloses being helically wound in no more than one rotational direction, and wherein the one rotational direction is selected from the group consisting of a clockwise direction and a counter clockwise direction.

Per claim 6, Li discloses that the conductive wiring includes a conductive material selected from the group consisting of copper, a copper alloy, nickel, palladium, and platinum (col. 7, lines 1-10).

Per claim 11, Li discloses an outer dielectric jacket 26.

Per claim 18, the Li ends are coated with a noble metal (col. 7, lines 5-10).

Per claim 32, the components are compressible.

Per claim 33, 34, Li discloses substrates (12, 16) with pads.

Per claims 37, 38, Li discloses holder 20.

Per claim 39, 40, the contacts are maintained by clamping forces (col. 5, lines 62- col. 6, line 5; col. 9, lines 40-45) .

Per claim 41, 42, the contacts may be solderably coupled (col. 7, lines 30-40).

Claims 14, 17, are rejected for the reasons pertaining to claims 4, 6

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 3, 12, 13, 35, 44, 45, 50, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li as in claims 1, 11, in view of Voltz. Li notes that "by changing the shape, number, and rigidity of the conducting elements as well as the shape and rigidity of the polymer body, the contact resistance, contact force, and compressibility can be selected within a wide range to meet the needs of the particular application." Col. 6, lines 5-10. Li also discloses using wire mesh for shielding (col. 7, lines 60-65) and oppositely wound conductors (col 7, lines 45-55). Li does not specifically disclose the helical winding as being braided or served. Voltz discusses using various configurations of wire meshing including braided and served meshing as flexible electrical conductors (col. 3, lines 45-55). At the time of the invention, it would have been obvious to use various well known configurations of conducting elements, such as braided or served mesh as taught in Voltz, for the Li conducting elements. The suggestion or motivation for doing so would have been to obtain the desired contact resistance, contact force, and compressibility as taught in Li.

Claims 12, 13, and 35 are rejected for the reasons pertaining to claims 2, 3.

Regarding claims 44, 45, 50, and 51 the method of forming the structures discussed in claims discussed above would have been obvious at the time of the invention.

Claims 5, 7, 10, 15, 19, 23, 24, 25, 28, 29, 30, 31, 36, 43, 46, 49, 52, 53, 55-57, and 60-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li as in claims 1, 11.

Regarding claims 5 and 29, and the diameter of the wiring or core, to the extent that Li does not specify exact dimensions, at the time of the invention, workable dimensions of the various elements would have been a matter of routine experimentation. In re Antonie, 559 F.2d 618 (CCPA 1977). Variations in the diameter would have been obvious minor adjustments without patentable significance. See In re Aller, 105 USPQ 233 (CCPA 1955)(Where general conditions of the claim are disclosed in the prior art, it is not inventive to discover optimal or workable ranges by routine experimentation).

Regarding claims 7, and the hardness of the core, to the extent that Li does not specify the hardness, at the time of the invention, workable hardnesses of the various elements would have been a matter of routine experimentation. In re Antonie, 559 F.2d 618 (CCPA 1977). Variations in the hardness would have been obvious minor adjustments without patentable significance. See In re Aller, 105 USPQ 233 (CCPA 1955)(Where general conditions of the claim are disclosed in the prior art, it is not inventive to discover optimal or workable ranges by routine experimentation).

Regarding claim 10, Li discloses that the core is made of compressible and insulating and made of a suitable dielectric material. Li does not specify that the core has a foamed structure. The selection of a known material based on its suitability for its intended purpose would have been obvious. Sinclair & Carroll Col. V. Interchemical Corp., 65 USPQ 297 (1945); In re Leshin, 227 F.2d 197 (CCPA 1960). At the time of the invention, it would have been obvious to select a suitable material such as well known materials having foamed structure.

Regarding claim 15, Li states that the angle of conducting element 22 at the surface of button 18, which is determined in the case of a winding or coil by the pitch, is a design parameter that bears a direct relation to the contact pressure required--the steeper (more vertical) the angle, the higher the force required. Col. 6, line 65. Li does not specifically state that the angle is between 30 and 60 degrees. At the time of the invention, a workable pitch would have been a matter of routine experimentation. In re Antonie, 559 F.2d 618 (CCPA 1977). Variations in the pitch would have been obvious minor adjustments without patentable significance. See In re Aller, 105 USPQ 233 (CCPA 1955).

Regarding claims 24, 25, 30, 31, and 36, and the materials of the core and jacket, the selection of a known material based on its suitability for its intended purpose would have been obvious. Sinclair & Carroll Col. V. Interchemical Corp., 65 USPQ 297 (1945); In re Leshin, 227 F.2d 197 (CCPA 1960). At the time of the invention, it would have been obvious to select a suitable materials (such as polytetrafluoroethylene or expanded polytetrafluoroethylene) for the core and jacket, including same or different materials for the core and jacket.

Claims 19, 23, and 28, are rejected for the reasons pertaining to claims 5, 7, 10.

Regarding claims 43, 46, 49, 52, 53, 55-57, and 60-70 the method of forming the structures discussed in claims discussed above would have been obvious at the time of the invention.

Claims 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li as in claims 11, in view of Chan et al. ("Chan"). Li does not discuss the ends of

the contact. Chan discloses contacts including non-planar, sharp edged ends (120). At the time of the invention, it would have been obvious to construct the Li contact end to include non-planar sharp edged features as taught in Chan. The suggestion or motivation for doing so would have been to increase the reliability of the final connection by providing aggressive mechanical piercing of surface oxides and contaminants (Chan col. 5, lines 55-65).

Claims 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Li as in claim 11 in view of Beaman et al. ("Beaman"). Li does not discuss the ends of the contact. Beaman discloses contacts including a surface concavity 16. At the time of the invention, it would have been obvious to construct the Li contact end to a surface concavity as taught in Beaman. The suggestion for doing so would have been to provide a good wiping surface as taught in Beaman (col. 3, lines 59-65).

Claims 27, 48, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li as in claims 11, in view of Kresge et al. ("Kresge"). Li does not discuss a hollow core. Kresge discloses a contact including hollow core 18 (see figures 4c, 4d). At the time of the invention, it would have been obvious to make the Li core hollow as desired. The suggestion or motivation for doing so would have been to adjust the resiliency and flexibility of the contact as taught in Kresge (col. 4, lines 55-65).

Regarding claims 48 and 57, the method of forming the structures discussed in claims discussed above would have been obvious at the time of the invention.

***Allowable Subject Matter***



Claims 8, 16, 26, 47, 54, and 58, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 8, 26, 47, 58, the prior art does not suggest the device or method as claimed, including the combination of all the claimed elements, the combination including that the core has axial grooves along an outer surface as claimed.

Regarding claim 16, 54, the prior art does not suggest the device or method as claimed, including the combination of all the claimed elements, the combination including that contact is at a node of two wires as claimed.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ross Gushi whose telephone number is (703) 306-4508. If attempts to reach the examiner by phone are unsuccessful, the examiner's supervisor, Paula A. Bradley, can be reached at (703) 308-2319. The phone number for the Group's facsimile is (703) 872-9306.

A handwritten signature in black ink, appearing to read "Ross Gushi", with a large, stylized loop at the end.